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CLAIMS

1. A reception method in a cellular radio system comprising in each cell at least one base station communicating with terminals located in its area and in which system Code Division Multiple Access is employed, and in
5   which method a received signal comprises a sum signal of signals originating from several transmitters, said signals comprising symbols, and interference elimination and a simultaneous multi-user detection are performed to said signal and in which method an estimate is generated for the received signal, **c h a r a c t e r i z e d** in that
10   the estimate comprises one or more estimates of a received user signal,

and that the effect of the symbols estimated on the symbol level is subtracted from the received sum signal, whereby a narrowband, symbol-level residual signal is obtained.

15   2. A reception method in a cellular radio system comprising in each cell at least one base station communicating with terminals located in its area and in which system Code Division Multiple Access is employed, and in which method a received signal comprises a sum signal of signals originating from several transmitters, and interference elimination and a simultaneous multi-
20   user detection are performed to said signal, **c h a r a c t e r i z e d** in that

an estimate comprises one or more estimates of a received user signal,

and that the received sum signal is correlated by a particular spreading code, whereby a first symbol-level signal is obtained,
25   and that the computed estimate is correlated by the same spreading code, whereby a second symbol-level signal is obtained,

and that the second symbol-level signal is subtracted from the first symbol level signal, whereby a narrowband, symbol-level residual signal is obtained.

30   3. A method as claimed in claim 1 or 2, **c h a r a c t e r i z e d** in that the parameters of the unknown signals are estimated from the narrowband residual signal.

4. A method as claimed in claim 1, **c h a r a c t e r i z e d** in that a decision whether new user signals have been found is made by means of pa-
35   rameters.

5. A method as claimed in claim 3, **c h a r a c t e r i z e d** in that by means of the estimated parameters the found signals are detected using the simultaneous multi-user detection.

6. A method as claimed in claim 1 or 2, **c h a r a c t e r i z e d** in that the received sum signal is first conveyed to a number of matched filters (206) in which the parameters of the known signals are estimated, and said signals are conveyed to a detector (208) in which the simultaneous multi-user detection is performed.

7. A method as claimed in claim 6, **c h a r a c t e r i z e d** in that the signal parameters comprise the signals' phase, amplitude and spreading code used.

8. A method as claimed in claim 6, **c h a r a c t e r i z e d** in that the signal parameters are estimated in parallel.

9. A method as claimed in claim 6, **c h a r a c t e r i z e d** in that the signal parameters are estimated sequentially.

10. A method as claimed in claim 6, **c h a r a c t e r i z e d** in that when some parameters of the unknown signals are known, these data are utilized when other parameters are searched.

11. A method as claimed in claim 1 or 2, **c h a r a c t e r i z e d** in that the residual signal comprises user symbols and that the symbols are combined incoherently.

12. A method as claimed in claim 1 or 2, **c h a r a c t e r i z e d** in that the residual signal comprises user symbols and that the symbols are combined coherently.

13. A method as claimed in claim 1 or 2, **c h a r a c t e r i z e d** in that the parameters are estimated in several stages in such a manner that preliminary estimates are searched first, whereupon a more accurate, final estimate is estimated from among the found, preliminary estimates.

14. A receiver in a cellular radio system comprising in each cell at least one base station communicating with terminals located in its area, in which method a received signal comprises a sum signal of signals originating from several transmitters, said receiver comprising means (208) for performing interference elimination and a simultaneous multi-user detection to the signal and means (210) for searching signal parameters, **c h a r a c t e r i z e d** in that the receiver further comprises means (210) for removing the effect of the signals of the known users from the received symbol-level sum signal, and

means (210) for estimating the parameters of the unknown signals from a narrowband residual signal.

15. A receiver as claimed in claim 14, **c h a r a c t e r i z e d** in that the receiver further comprises means (208) for removing, by means of the estimated parameters, the effect of the found signals from the received signal.

16. A receiver as claimed in claim 14, **c h a r a c t e r i z e d** in that the receiver further comprises means (208) for detecting, by means of the estimated parameters, the found signals, using the simultaneous multi-user detection.